

# TASCAM CD-A750

CONTROL I/O RS-232C connector  
RS-232C Protocol Specification

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TEAC Corporation

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1. Overview

The CD-A750 can be controlled by computer or external device via RS-232C connector on the rear panel with the RS-232C serial protocol. In this document, the CD-A750 is referred to as the "controlled device," and the external device that controls it is referred to as the "external controller."

2. Specifications

Electrical specifications

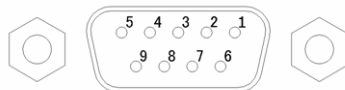
Conforms to standard	JIS X-5101 (equivalent to former JIS C-6361 and EIA RS-232C) (Not compatible with the RS-422A used in professional VTR units)	
Impedance at receiver	Measured with an applied voltage of between $\pm 3$ and 15V, the DC resistance is between 3K $\Omega$ and 7K $\Omega$ . Total load capacitance is less than 2500pF	
Open circuit voltage at transmitter	Less than 25V	
Open circuit voltage at receiver	Less than 2V	
Signal voltage	Open circuit voltage at the receiver is 0V, the signal voltage is between $\pm 5$ V and $\pm 15$ V for a load impedance of between 3K and 7K $\Omega$ .	
Signal discrimination	Logical "1"	Less than -3V
	Logical "0"	More than +3V

Communication format

Circuit type	3-wire, half-duplex
Transmission type	Digital binary serial
Data speed (baud rate)	4800/9600/19200/38400 bit/sec
Character length	7/8 bit
Parity bit	Odd/Even/None
Stop bit	1/2 bit
(Data speed, character length, parity bit, and stop bit settings are made on the controlled device.)	

Connector pin-out

Connector	D-sub 9-pin female (unified screw thread)
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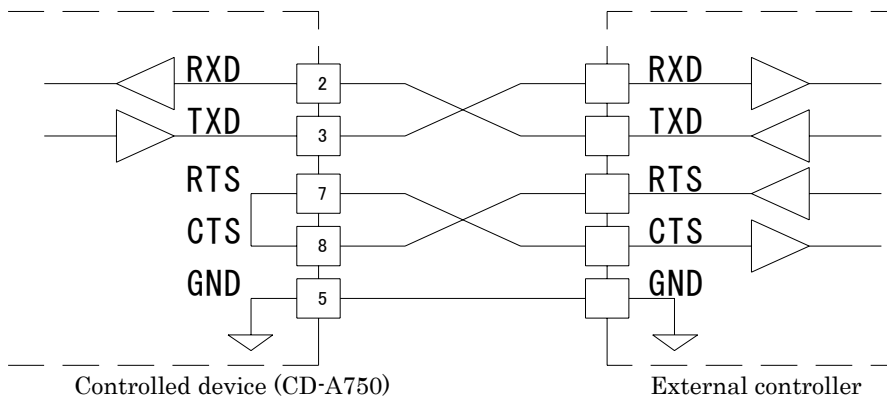


Terminal pin-out and input/output signals

Pin no.	In/Out	Signal name	Description
1	-	NC	Not connected
2	In	Rx Data	Data received at this pin *1
3	Out	Tx Data	Data transmitted from this pin
4	Out	(Reserved)	Reserved
5	-	GND	Ground
6	In	(Reserved)	Reserved
7	Out	RTS	Request To Send (output "request to transmit") *2
8	In	CTS	Clear To Send (input "ready to receive") *2
9	-	NC	Not connected

\*1: A voltage that satisfies the RS-232C specification must be applied to Rx Data.

\*2: RTS/CTS is loopback-connected within the controlled device. If using RTS/CTS control, consider the design of the external controller.



**3. Command format**

Command format overview

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	...	Byte n
LF	ID	Command		Data 1	Data 2	Data 3	Data 4	...	CR

Commands begin with a "line feed (LF)," end with a "carriage return (CR)".

The following byte of "LF" is machine ID.

In the case of CD-A750, "0" (30H) means CD and "1" (31H) means Cassette deck.

The machine ID for common function is either "0" or "1"

Commands are composed by two ASCII bytes.

The following bytes of the command are the data bytes.

The number of data bytes depends on the command.

For details on the data, refer to the detailed explanation for each command. For commands that use 0-9 and A-F as data values, uppercase characters are used for A-F.

Example commands

Example 1: PLAY command for the CD

When the controlled device is in Stop or Ready mode, this command starts playback of the CD on the controlled device.

The PLAY command is [12].

		ID	Command		
ASCII	LF	0	1	2	CR
HEX	0Ah	30h	31h	32h	0Dh

Example 2: Direct search for track 123 on the CD

Use "DIRECT TRACK SEARCH PRESET [23]" command.

The data bytes consist of ASCII in two-byte units.

For the "DIRECT TRACK SEARCH PRESET" command, the track number is specified as follows.

- Data 1 Tens digit of the specified track number
- Data 2 Ones digit of the specified track number
- Data 3 Thousands digit of the specified track number
- Data 4 Hundreds digit of the specified track number

Thus, the transmitted command will be as follows.

		ID	Command		Data: track 123				
ASCII	LF	0	2	3	2	3	0	1	CR
HEX	0Ah	30h	32h	33h	32h	33h	30h	31h	0Dh

Example 3: FORWARD PLAY command for the Cassette

When the controlled device is in Stop or Ready mode, this command starts playback of the cassette deck on the controlled device.

The PLAY command is [12].

		ID	Command		
ASCII	LF	1	1	1	CR
HEX	0Ah	31h	31h	31h	0Dh

**List of commands**

CD Player section (Machine ID="0")

Control/Presets/Sense Command		Return Command	
		88	TIME DATA
10	STOP		
11	PLAY		
12	PLAY		
14	READY		
16	SHUTTLE		
18	EJECT		
1A	TRACK SKIP		
1D	CALL		
20	AUTO CUE LEVEL PRESET	A0	AUTO CUE LEVEL RETURN
23	DIRECT TRACK SEARCH PRESET		
2C	TIME SEARCH PRESET		
30	AUTO CUE SELECT	B0	AUTO CUE SELECT RETURN
32	EOM TRACK TIME SELECT	B2	EOM TRACK TIME RETURN
34	RESUME PLAY SELECT	B4	TIMER/RESUME PLAY SELECT RETURN
35	PITCH CONTROL SELECT	B5	PITCH CONTROL SELECT RETURN
36	AUTO READY SELECT	B6	AUTO READY SELECT RETURN
37	REPEAT SELECT	B7	REPEAT SELECT RETURN
3A	INCR PLAY SELECT	BA	INCR PLAY SELECT RETURN
3B	AUTO SPACE SELECT	BB	AUTO SPACE SELECT RETURN
3F	TIME DATA SEND SELECT	BF	TIME DATA SEND SELECT RETURN
4D	PLAY MODE SELECT		
4E	PLAY MODE SENSE	CE	PLAY MODE RETURN
50	MECHA STATUS SENSE	D0	MECHA STATUS RETURN
55	TRACK No. SENSE	D5	TRACK No. STATUS RETURN
56	MEDIA STATUS SENSE	D6	MEDIA STATUS RETURN
57	CURRENT TRACK INFORMATION SENSE	D7	CURRENT TRACK INFORMATION RETURN
58	CURRENT TRACK TIME SENSE	D8	CURRENT TRACK TIME RETURN
59	TITLE SENSE	D9	TITLE RETURN
5D	TOTAL TRACK No./TOTAL TIME SENSE	DD	TOTAL TRACK No./TOTAL TIME RETURN
5E	PGM TOTAL TRACK No./TOTAL TIME SENSE	DE	PGM TOTAL TRACK No./TOTAL TIME RETURN

## Cassette Deck section (Machine ID = "1")

Control/Presets/Sense Command		Return Command	
10	STOP		
11	FORWARD PLAY		
12	REVERSE PLAY		
13	RECORD		
1A	F.FWD/REW		
1B	REC MUTE		
1C	PAUSE		
2D	RTZ		
50	MECHA STATUS SENSE	D0	MECHA STATUS RETURN
56	MEDIA STATUS SENSE	D6	MEDIA STATUS RETURN
5A	COUNTER SENSE	DA	COUNTER RETURN
65	COUNTER RESET		

## Common Functions (Machine ID = "0" or "1")

Control/Presets/Sense Command		Return Command	
0F	INFORMATION REQUEST	8F	INFORMATION RETURN
4C	REMOTE/LOCAL SELECT	CC	REMOTE/LOCAL SELECT RETURN
		F0	ERROR SENSE REQUEST
		F2	ILLEGAL STATUS
		F4	POWER ON STATUS
		F6	CHANGE STATUS
78	ERROR SENSE	F8	ERROR SENSE RETURN

**Command sequence**

In most cases the controlled device will not send an ACK in response to transport control or data preset commands sent from the external controller.

The controlled device will send back a return command in response to data sense commands that request a data value specified on the controlled device.

When the status of the controlled device changes, such as from Stop to Play mode, or when an error etc. occurs, the controlled device will send a command indicating this to the external controller.

Examples of the command sequence are given below.

You must leave an interval of at least 20 ms between commands.

**Example 1: Controlling the transport of the controlled device**

This example describes the Play operation.

When the controlled device receives the PLAY command and enters Play mode, it will transmit a CHANGED STATUS command.

ACK is not transmitted for the PLAY command.

Command		State of controlled device
External controller	Controlled device	
PLAY	->	Stopped
	<- CHANGED STATUS	Transmit when starting Play

**Example 2: Presetting data**

This example describes setting the AUTO CUE LEVEL.

When the controlled device receives the AUTO CUE LEVEL PRESET (Preset) command, it will set its AUTO CUE LEVEL.

ACK is not transmitted for this command.

Command		State of controlled device
External controller	Controlled device	
AUTO CUE LEVEL PRESET (Preset -54dB)	->	AUTO CUE LEVEL set to -54dB

**Example 3: Obtaining specified data**

This example describes obtaining the currently-set AUTO CUE LEVEL.

When the controlled device receives the AUTO CUE LEVEL PRESET (Sense) command, it will return the currently-set AUTO CUE LEVEL.

Command		State of controlled device
External controller	Controlled device	
AUTO CUE LEVEL PRESET (Sense)	->	
	<- AUTO CUE LEVEL RETURN	



**Example 4:**           Checking the status of the controlled device, and performing the next operation  
 When the operating status of the controlled device changes, it will transmit CHANGED STATUS. By using CHANGED STATUS as a trigger for sending MECHA STATUS SENSE, the new operating status can be determined.  
 This example shows how to check the record-ready status of the controlled device and then initiate recording.

External controller	Command		State of controlled device
		Controlled device	
RECORD (Record Ready)	->		Stopped
	<-	CHANGED STATUS	Transmitted when entering record-ready status
MECHA STATUS SENSE	->		
	<-	MECHA STATUS RETURN	Returns record-ready status
RECORD (Record)	->		
	<-	CHANGES STATUS	Transmitted when entering record status

**Command details**

The commands, data, and machine IDs described here are characters (ASCII).

A command is two character bytes, a machine ID is one character byte, and each item of data is an individual character byte.

The CD-A750 can use the following track numbers. However if a number not existing on the disc is specified, it will be considered an invalid command.

Track number (audio CD)      maximum 99  
 Track number (MP3 CD)      maximum 999

CD functions

**STOP**

Stops the CD player of the controlled device.

Command      10  
 Machine ID    0  
 Data          none  
 Return        none

**PLAY**

Play starts the CD player of the controlled device.

Command      11 & 12  
 Machine ID    0  
 Data          none  
 Return        none

**READY**

Puts the CD player of the controlled device into the PLAY-READY mode.

Command      14  
 Machine ID    0  
 Data          2 bytes

Data 1	Data 2	Description	Remarks
0	0	Ready Off	
0	1	Ready On	

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return        none

**SHUTTLE**

Puts the CD player of the controlled device in SHUTTLE mode.

SHUTTLE mode will be maintained until a command such as STOP, PLAY, or READY is received.

Command      16  
 Machine ID    0  
 Data          2 bytes

Data 1	Data 2	Description	Remarks
0	0	Shuttle Forward	Shuttles in the forward direction.
0	1	Shuttle Reverse	Shuttles in the backward direction.

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return        none

**TRAY/EJECT**

Opens or closes the tray of the CD player of the controlled device

Command 18  
 Machine ID 0  
 Data none  
 Return none

**TRACK SKIP**

Causes the CD player of the controlled device to skip tracks.  
 After skipping, the device will maintain the mode in which it was when the operation began.

Command 1A  
 Machine ID 0  
 Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Track Skip Next	Skips to the next track.
0	1	Track Skip Previous	If the current position is at the beginning of a track, skips to the beginning of the previous track. If the current position is not at the beginning of a track, skips to the beginning of the current track..

• If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return none

**CALL**

Causes the controlled device to locate to the call point and enter playback-ready mode.

Command 1D  
 Machine ID 0  
 Data none  
 Return none

**AUTO CUE LEVEL PRESET**

Sets the Auto Cue Level of CD player of the controlled device.  
 A return command is returned only if Sense [FF] is specified.  
 The Auto Cue Mode setting is made using the command "AUTO CUE SELECT [30]."

Command 20  
 Machine ID 0  
 Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Preset -24dB	
0	1	Preset -30dB	
0	2	Preset -36dB	
0	3	Preset -42dB	
0	4	Preset -48dB	
F	F	Sense	Requests that the current preset level to be returned.

• If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return AUTO CUE LEVEL RETURN [A0]

**DIRECT TRACK SEARCH PRESET**

Searches for the specified track number.  
 When this command is received while in PLAY mode, the CD player of the controlled device will enter PLAY mode after searching. If the CD player of the controlled device had been in any other mode when searching began, it will be in play ready mode after searching.

Command 23  
 Machine ID 0  
 Data 4 bytes

	Description	Remarks
Data 1	Tens digit of the track number	Track number

Data 2	Ones digit of the track number	Example) 2301: track 123
Data 3	Thousands digit of the track number	
Data 4	Hundreds digit of the track number	

- If the specified track number does not exist on the disc, the controlled device will transmit ILLEGAL [F2].

Return none

### TIME SEARCH PRESET

Searches for the specified track number and time.

If this command is received while in PLAY mode, the device will enter PLAY mode following the search. If the device was in any other mode, it will be in play ready mode following the search.

Command 2C

Machine ID 0

Data 12 bytes

	Description	Remarks
Data 1	Tens digit of track number	
Data 2	Ones digit of track number	
Data 3	Thousands digit of track number	
Data 4	Hundreds digit of track number	
Data 5	Tens digit of minutes	
Data 6	Ones digit of minutes	
Data 7	Thousands digit of minutes	
Data 8	Hundreds digit of minutes	
Data 9	Tens digit of seconds	
Data 10	Ones digit of seconds	
Data 11	0	Set to 0
Data 12	0	Set to 0

- If a track number not existing on the disc is specified, the controlled device will transmit ILLEGAL [F2].
- If data outside the operating range is received, the controlled device will transmit ILLEGAL [F2].

Return none

### AUTO CUE SELECT

Specifies the auto cue mode setting of the CD player of the controlled device.

A return command is returned only if Sense [FF] is specified.

The AUTO CUE LEVEL setting is made by the command "AUTO CUE LEVEL PRESET [20]."

Command 30

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Auto Cue Off	
0	1	Auto Cue On	
F	F	Sense	Requests that the preset content be returned.

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return AUTO CUE SELECT RETURN [B0]

### EOM TRACK TIME PRESET

Specifies the time at which the tally signal will be output by the EOM (End Of Message) function which outputs a tally signal when the track nears its end.

A return command is returned only if data [FF] is specified.

Command 32

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	EOM Track Off	
0	5	5 seconds	
1	0	10 seconds	
1	5	15 seconds	
2	0	20 seconds	
2	5	25seconds	
3	0	30 seconds	
3	5	35seconds	
F	F	Sense	Requests that the preset content be returned.

- If data outside the range specified above is received, the controlled device will transmit ILLEGAL[F2].

Return EOM TRACK TIME RETURN [B2]

**RESUME PLAY SELECT**

Specifies the resume play mode setting of the CD player of the controlled device.

A return command is returned only if Sense [FF] is specified.

Command 34

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Resume Play Off	
0	2	Resume Play On	
F	F	Sense	Requests that the preset content be returned.

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return TIMER/RESUME PLAY SELECT RETURN [B4]

**PITCH CONTROL SELECT**

Specifies the Pitch Control mode of the CD player of the controlled device.

A return command is returned only if Sens [FF] is specified.

Command 35

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Pitch Control Off	
0	1	Pitch Control On	
F	F	Sense	Requests that the preset content be returned.

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return PITCH CONTROL SELECT RETURN [B5]

**AUTO READY SELECT**

Specifies the Auto Ready mode setting of the CD player of the controlled device.

A return command is returned only if Sense [FF] is specified.

Command 36

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Auto Ready Off	
0	1	Auto Ready On	
F	F	Sense	Requests that the preset content be returned.

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return AUTO READY SELECT RETURN [B6]

**REPEAT SELECT**

Specifies the Repeat Mode setting of the CD player of the controlled device.

A return command is returned only if Sense [FF] is specified.

Command 37

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Repeat Off	
0	1	Repeat On	
F	F	Sense	Requests that the preset content be returned.

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return REPEAT SELECT RETURN [B7]

**INCR PLAY SELECT**

Specifies the Incremental Play Mode of the CD player of the controlled device.

A return command is returned only if Sense [FF] is specified.

Command 3A

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	INCR Play Off	
0	1	INCR Play On	
F	F	Sense	Requests that the preset content be returned.

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return INCR PLAY SELECT RETURN [BA]

**AUTO SPACE SELECT**

Specifies the Auto Space Mode of the CD player of the controlled device.

A return command is returned only if Sense [FF] is specified.

Command 3B

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Auto Space Off	
0	1	Auto Space On	
F	F	Sense	Requests that the preset content be returned.

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return AUTO SPACE SELECT RETURN [BB]

**TIME DATA SEND SELECT**

Specifies the output time mode of the CD player of the controlled device.

A return command is returned only if Sense [FF] is specified.

Command 3F

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Off	
0	1	Elapsed time send	With frame data
0	2	Remain time send	With frame data
0	4	Total remain time send	With frame data
1	1	Elapsed time send	Without frame data
1	2	Remain time send	Without frame data

1	4	Total remain time send	Without frame data
F	F	Sense	Requests that the preset content be returned.

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].
- Except for the CD-DA disc, only [11] Elapsed time send is available

Return TIME DATA SEND SELECT RETURN [BF]

#### PLAY MODE SENSE

Requests that the status of the CD player of the controlled device's Play mode be returned.

Command 4E  
Machine ID 0  
Data none  
Return PLAY MODE RETURN [CE]

#### MECHA STATUS SENSE

Requests that the status of the CD player of the controlled device's mechanism be returned.

Command 50  
Machine ID 0  
Data none  
Return MECHA STATUS RETURN [D0]

#### TRACK No. SENSE

Requests that the current track number be returned.

Command 55  
Machine ID 0  
Data none  
Return TRACK No. RETURN [D5]

#### DISC STATUS SENSE

Requests that the presence or absence of a disc and the type of disc be returned.

Command 56  
Machine ID 0  
Data none  
Return DISC STATUS RETURN [D6]

#### CURRENT TRACK INFORMATION SENSE

Requests that information for the current track be returned.

Command 57  
Machine ID 0  
Data none  
Return CURRENT TRACK INFORMATION RETURN [D7]

#### CURRENT TRACK TIME SENSE

Requests that the time information for the current track be returned in the specified form.

Command 58  
Machine ID 0  
Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Elapsed Time	Elapsed track time
0	1	Remain Time	Remaining track time
0	3	Total Remain Time	Remaining disc time

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return CURRENT TRACK TIME RETURN [D8]

**TEXT SENSE**

Requests that the title of the current track be returned.

Command 59  
Machine ID 0  
Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0		

- If a track number not existing on the disc is specified, the controlled device will transmit ILLEGAL [F2].

Return TEXT RETURN [D9]

**TOTAL TRACK No./TOTAL TIME SENSE**

Requests that the total number of tracks on the disc and the total time be returned.

Command 5D  
Machine ID 0  
Data none  
Return TOTAL TRACK No./TOTAL TIME RETURN [DD]

**PGM TOTAL TRACK No./TOTAL TIME SENSE**

Requests that the total number of tracks for program playback and the total time be returned.

Command 5E  
Machine ID 0  
Data none  
Return PGM TOTAL TRACK No./TOTAL TIME RETURN [DE]

**TIME DATA**

This is the return command for the command "TIME DATA SEND SELECT [3F]".

It returns the total number of tracks and the total time of the disc.

Command 88  
Machine ID 0  
Data 8 or 6 bytes

	Description	Remarks
Data 1	Tens digit of minutes	
Data 2	Ones digit of the minutes	
Data 3	Thousands digit of the minutes	
Data 4	Hundreds digit of the minutes	
Data 5	Tens digit of the seconds	
Data 6	Ones digit of the seconds	
Data 7	Tens digit of the frames	
Data 8	Ones digit of the frames	

- The cycle of the command output depends on the controlled device.
- The frame data output can be set on or off.

Request/Preset TIME DATA SEND SELECT [3F]

**AUTO CUE LEVEL RETURN**

This is the return command in response to the command "AUTO CUE LEVEL PRESET [20]".

It returns the currently specified auto cue level.

Command A0  
Machine ID 0  
Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	-24dB	
0	1	-30dB	



0	2	-36dB	
0	3	-42dB	
0	4	-48dB	

Request/Preset AUTO CUE LEVEL PRESET [20]

**AUTO CUE SELECT RETURN**

This is the return command in response to the command "AUTO CUE SELECT [30]".

It returns the Auto Cue on/off status.

Command B0

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Auto Cue Off	
0	1	Auto Cue On	

Request/Preset AUTO CUE SELECT [30]

**EOM TRACK TIME RETURN**

This is the return command in response to the command "EOM TRACK TIME PRESET [32]".

It returns the time at which the EOM (End Of Message) function will give notice that the end of the track is near.

Command B2

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	EOM Track Off	
N1	N2	Number of seconds	N1: Tens digit of seconds, N2: Ones digit of seconds

Request/Preset EOM TRACK TIME PRESET [32]

**TIMER/RESUME PLAY SELECT RETURN**

This is the return command in response to the command "TIMER/RESUME PLAY SELECT [34]".

It returns the status of the Timer play setting and Resume play mode.

Command B4

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Timer Play: Off / Resume Play: Off	
0	1	Timer Play: On / Resume Play: Off	
0	2	Timer Play: Off / Resume Play: On	
0	3	Timer Play: On / Resume Play: On	

Request/Preset TIMER/RESUME PLAY SELECT [34]

**PITCH CONTROL SELECT RETURN**

This is the return command for the command "PITCH CONTROL SELECT [35]".

It returns the Pitch Control on/off status.

Command B5

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Pitch Control Off	
0	1	Pitch Control On	

Request/Preset PITCH CONTROL SELECT [35]

**AUTO READY SELECT RETURN**

This is the return command for the command "AUTO READY SELECT [36]".

It returns the Auto Ready on/off status.

Command B6

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Auto Ready Off	
0	1	Auto Ready On	

Request/Preset AUTO READY SELECT [36]

**REPEAT SELECT RETURN**

This is the return command for the command "REPEAT SELECT [37]".

It returns the Repeat Mode on/off status.

Command B7

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Repeat Off	
0	1	Repeat On	

Request/Preset REPEAT SELECT [37]

**INCR PLAY SELECT RETURN**

This is the return command for the command "INCR PLAYSYNC SELECT [3A]".

It returns the Incremental Play on/off status.

Command BA

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	INCR Play Off	
0	1	INCR Play On	

Request/Preset INCR PLAY SELECT [3A]

**AUTO SPACE SELECT RETURN**

This is the return command for the command "AUTO SPACE SELECT [3B]".

It returns the Auto Space on/off status.

Command BB

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Auto Space Off	
0	1	Auto Space On	

Request/Preset AUTO SPACE SELECT [3B]

**TIME DATA SEND SELECT RETURN**

This is the return command for the command "TIME DATA SEND SELECT [3F]".

It returns the Time Data format.

Command BF

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Off	
0	1	Elapsed Time Send	With Frame data

0	2	Remain Time Send	With Frame data
0	4	Total Remain Time Send	With Frame data
1	1	Elapsed Time Send	Without Frame data
1	2	Remain Time Send	Without Frame data
1	4	Total Remain Time Send	Without Frame data

Request/Preset TIME DATA SEND SELECT [3F]

**PLAY MODE RETURN**

This is the return command for the command "PLAY MODE SENSE [4E]".

It returns the current Play mode.

Command CE

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Continue	Play all tracks on the disc
0	1	Single	Play a single track
0	3	Within A-B	A-B repeat play mode
0	4	Program (Data Empty)	Program Play mode (with no tracks programmed)
0	5	Program	Program Play mode
0	6	Random	Random Play mode

Request/Preset PLAY MODE SENSE [4E]

**MECHA STATUS RETURN**

This is the return command for the command "MECHA STATUS SENSE [50]".

It returns the current operating status of the mechanism.

Command D0

Machine ID 0

Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	No Disc	No disc is inserted
0	1	Tray/Eject	Tray is being opened or closed
0	2	Open	Tray is open
1	0	Stop	Stopped
1	1	Play	Playing
1	2	Ready On	Play-ready mode
F	F	Other than above	

Request/Preset MECHA STATUS SENSE [50]

**TRACK No. RETURN**

This is the return command for the command "TRACK No. SENSE [55]".

It returns whether the current track number and EOM are shown.

If Group mode is on, the group number is returned.

Command D5

Machine ID 0

Data 6 bytes

	Description	Remarks
Data 1	EOM Status	00: EOM indication not shown
Data 2		01: EOM is displayed
Data 3	Tens digit	0000 Stopped, and track is not cued, etc. 0001 – 0999 Track number
Data 4	Ones digit	
Data 5	Thousands digit	
Data 6	Hundreds digit	

Request/Preset TRACK No. SENSE [55]

**MEDIA STATUS RETURN**

This is the return command for the command "MEDIA STATUS SENSE [56]".

It returns the presence/absence of a disc, and the type of disc.

Command D6

Machine ID 0

Data 4 bytes

Data 1	Media Status	00: Media not present
Data 2		01: Media present
Data 3	Media Type	00: CD-DA
Data 4		10: CD-Data (DATA CD) FF: Others

Request/Preset DISC STATUS SENSE [56]

**CURRENT TRACK INFORMATION RETURN**

This is the return command for the command "CURRENT TRACK INFORMATION SENSE [57]".

If the Play mode is Program mode, this returns the program number. For any other Play mode, it returns the track number.

Command D7

Machine ID 0

Data 12 bytes

	Description	Remarks
Data 1	Tens digit of the track number	
Data 2	Ones digit of the track number	
Data 3	Thousands digit of the track number	
Data 4	Hundreds digit of the track number	
Data 5	Tens digit of the minutes	
Data 6	Ones digit of the minutes	
Data 7	Thousands digit of the minutes	
Data 8	Hundreds digit of the minutes	
Data 9	Tens digit of the seconds	
Data 10	Ones digit of the seconds	
Data 11	Tens digit of the frames	
Data 12	Ones digit of the frames	

Request/Preset CURRENT TRACK INFORMATION SENSE [57]

**CURRENT TRACK TIME RETURN**

This is the return command for the command "CURRENT TRACK TIME SENSE [58]".

It returns the current track time or the disc time.

Command D8

Machine ID 0

Data 10 bytes

	Description	Remarks
Data 1	Time Mode	00: Track elapsed time
Data 2		01: Track remaining time 03 Disc remaining time
Data 3	Tens digit of the minutes	
Data 4	Ones digit of the minutes	
Data 5	Thousands digit of the minutes	
Data 6	Hundreds digit of the minutes	
Data 7	Tens digit of the seconds	
Data 8	Ones digit of the seconds	
Data 9	Tens digit of the frames	

Data 10	Ones digit of the frames	
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Request/Preset CURRENT TRACK TIME SENSE [58]

**TITLE RETURN**

This is the return command for the command "TITLE SENSE [59]".

It returns the title of the track.

If no title has been written for the specified track or the title data is other than ASCII format, this returns the command "ILLEGAL SENSE REQUEST [F2]."

Command D9  
 Machine ID 0  
 Data none  
 Data 3 bytes - 35 bytes

	Description	Remarks
Data 1	0	Fixed to "00"
Data 2	0	
Data 3 – Data35	Text data	ASCII data

- The title is between 0 and 33 character bytes in length.
- The returned data might be shorter than the length of actual data.

Request/Preset TITLE SENSE [59]

**TOTAL TRACK No./TOTAL TIME RETURN**

This is the return command for the command "TOTAL TRACK No./TOTAL TIME SENSE [5D]".

It returns the total number of tracks and the total time of the disc.

Command DD  
 Machine ID 0  
 Data 12 bytes

	Description	Remarks
Data 1	Tens digit of total number of tracks	If Data 1 – Data 4 is 0000, the disc is either a blank disc, or no disc is inserted.
Data 2	Ones digit of total number of tracks	
Data 3	Thousands digit of total number of tracks	
Data 4	Hundreds digit of total number of tracks	
Data 5	Tens digit of minutes	
Data 6	Ones digit of the minutes	
Data 7	Thousands digit of the minutes	
Data 8	Hundreds digit of the minutes	
Data 9	Tens digit of the seconds	
Data 10	Ones digit of the seconds	
Data 11	Tens digit of the frames	
Data 12	Ones digit of the frames	

Request/Preset TOTAL TRACK No./TOTAL TIME SENSE [5D]

**PGM TOTAL TRACK No./TOTAL TIME RETURN**

This is the return command for the command "PGM TOTAL TRACK No./TOTAL TIME SENSE [5E]".

It returns the total number of tracks and total disc time for Program Play mode.

Command DE  
 Machine ID 0  
 Data 12 bytes

	Description	Remarks
Data 1	Tens digit of total number of tracks	If Data 1 – Data 4 is 0000, no program has been created.
Data 2	Ones digit of total number of tracks	
Data 3	Thousands digit of total number of tracks	
Data 4	Hundreds digit of total number of tracks	

Data 5	Tens digit of the minutes	
Data 6	Ones digit of the minutes	
Data 7	Thousands digit of the minutes	
Data 8	Hundreds digit of the minutes	
Data 9	Tens digit of the seconds	
Data 10	Ones digit of the seconds	
Data 11	Tens digit of the frames	
Data 12	Ones digit of the frames	

Request/Presets PGM TOTAL TRACK No./TOTAL TIME SENSE [5E]

#### Cassette Deck

##### STOP

Puts the cassette deck of the controlled device in STOP mode.

Command 10  
Machine ID 1  
Data none  
Return none

##### FORWARD PLAY

Puts the cassette deck of the controlled device in Forward PLAY mode, or in Forward RECORD mode if it is in record-ready mode.

Command 11  
Machine ID 1  
Data none  
Return none

##### REVERSE PLAY

Puts the cassette deck of the controlled device in Reverse PLAY mode, or in Reverse RECORD mode if it is in record-ready mode.

Command 12  
Machine ID 1  
Data none  
Return none

##### RECORD

Puts the cassette deck of the controlled device in RECORD-READY mode.

Command 13  
Machine ID 1  
Data none  
Return none

##### F.FWD/REW

Puts the cassette deck of the controlled device in F.FWD mode or REW mode.

Command 1A  
Machine ID 1  
Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	F.FWD	
0	1	REW	

• If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return none

**REC MUTE**

Executes the REC MUTE on cassette deck of the controlled device.

Command 1B  
Machine ID 1  
Data none  
Return none

**PAUSE**

Puts the cassette deck of the controlled device in PAUSE mode.

Command 1C  
Machine ID 1  
Data none  
Return none

**RTZ**

Executes the RTZ on cassette deck of the controlled device.

Command 1D  
Machine ID 1  
Data none  
Return none

**MECHA STATUS SENSE**

Requests that the current mechanism status of the cassette deck of the controlled device be returned.

Command 50  
Machine ID 1  
Data none  
Return MECHA STATUS RETURN [D0]

**MEDIA STATUS SENSE**

Requests that the presence or absence of a media and the type of media be returned.

Command 56  
Machine ID 1  
Data none  
Return MEDIA STATUS RETURN [D6]

**COUNTER SENSE**

Requests that the counter information of the cassette deck of the controlled device be returned.

Command 5A  
Machine ID 1  
Data none  
Return COUNTER RETURN [D6]

**COUNTER RESET**

Resets the counter of the cassette deck of the controlled device.

Command 65  
Machine ID 1  
Data none  
Return none

**MECHA STATUS RETURN**

This is the return command for the command "MECHA STATUS SENSE [50]".

It returns the current operating status of the mechanism.

Command D0

Machine ID 1  
Data 4 bytes

Data 1	Data 2	Description	Remarks
1	0	Stop	
1	1	Play	
1	3	Record	
1	4	Record-Pause	
1	A	F.FWD/REW	
1	C	Pause	

Data 3	Data 4	Description	Remarks
0	0	No direction	
0	1	Forward direction	
0	2	Reverse direction	

Request/Preset MECHA STATUS SENSE [50]

**MEDIA STATUS RETURN**

This is the return command for the command "MEDIA STATUS SENSE [56]".

It returns the presence/absence of a media, and the type of media.

Command D6

Machine ID 1

Data 4 bytes

Data 1	Media Status	00: Media not present
Data 2		01: Media present
Data 3	Write Protect tabs	00: Forward = permitted / Reverse = permitted
Data 4		01: Forward = prohibited / Reverse = permitted
		10: Forward = permitted / Reverse = prohibited
		11: Forward = prohibited / Reverse = prohibited

Request/Preset MEDIA STATUS SENSE [56]

**COUNTER RETURN**

This is the return command for the command "COUNTER SENSE [5A]".

It returns the current counter data.

Command DA

Machine ID 1

Data 4 bytes

	Description	Remarks
Data 1	Thousands digit of counter data	
Data 2	Hundreds digit of counter data	
Data 3	Tens digit of counter data	
Data 4	Ones digit of counter data	

Request/Preset COUNTER SENSE [5A]

Common functions

**INFORMATION REQUEST**

Requests the controlled device to return information such as the software version.

Command 0F

Machine ID 0 or 1

Data none

Return INFORMATION RETURN [8F]



**REMOTE/LOCAL SELECT**

Enables or disables key operations on the controlled device's own panel.

A return command is returned only if Sense [FF] is specified.

Command 4C  
 Machine ID 0 or 1  
 Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Remote	Only remote operation via RS-232C will be enabled. Key operations on the device's own panel and remote controller will be disabled.
0	1	Local	Remote operation and key operations on the device's own panel will be enabled.
F	F	Sense	Requests that the preset content be returned.

- If data other than the above is received, the controlled device will transmit ILLEGAL [F2].

Return REMOTE/LOCAL SELECT RETURN [CC]

**ERROR SENSE**

Requests that error data be returned from the controlled device.

If the controlled device issues an "ERROR SENSE REQUEST [F0]," you should use this command to check the content of the error.

Command 78  
 Machine ID 0 or 1  
 Data none  
 Return ERROR SENSE RETURN [F8]

**INFORMATION RETURN**

This is the return command in response to the command "INFORMATION REQUEST [0F]."

It returns the software version of the controlled device.

Command 8F  
 Machine ID 0  
 Data 4 bytes

Data 1	Tens digit of the software version	Example of Data 1 – Data 4 0100          Version 1.00
Data 2	Ones digit of the software version	
Data 3	First decimal place of the software version	
Data 4	Second decimal place of the software version	

Request INFORMATION REQUEST [0F]

**REMOTE/LOCAL SELECT RETURN**

This is the return command for the command "REMOTE/LOCAL SELECT [4C]."

It returns the enabled or disabled status for operation of the device's panel keys.

Command CC  
 Machine ID 0 or 1  
 Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Remote	Only remote operations via RS-232C will be enabled. Key operations on the device's own panel and remote controller will be disabled.
0	1	Local	Remote operations as well as operations of the device's own panel will be enabled.

Request/Preset REMOTE/LOCAL SELECT [4C]

**ERROR SENSE REQUEST**

This is transmitted when the controlled device is in an error condition.

If this command is transmitted from the controlled device, the external controller device should transmit the command "ERROR SENSE [78]" to determine the content of the error.

Command F0  
Machine ID 0 or 1  
Data none  
Request/Preset none

**ILLEGAL STATUS**

This command is returned when an invalid command or data has been sent to the controlled device.

If this command is transmitted from the controlled device, the external controller device should re-transmit the correct command or data in compliance with the specifications.

Command F2  
Machine ID 0 or 1  
Data none  
Request/Preset none

**POWER ON STATUS**

This command indicates that the controlled device has been powered-on.

Command F4  
Machine ID 0 or 1  
Data none  
Request/Preset none

**CHANGED STATUS**

This command indicates that the operation or mode of the controlled device has changed.

Command F6  
Machine ID 0 or 1  
Data 2 bytes

Data 1	Data 2	Description	Remarks
0	0	Changed Mechanical Status	The status of the mechanism has changed
0	3	Changed Track/EOM Status	The track number has changed. The EOM display/non-display state has changed.

Request/Preset none

**ERROR SENSE RETURN**

This is the return command for the command "ERROR SENSE [78]."

It returns an error code.

Command F8  
Machine ID 0 or 1  
Data 4 bytes

Data 1	N2	Error code (N1-N2N3)
Data 2	N3	
Data 3	0	1-01 An error occurred during communication with the CD drive
Date 4	N1	1-02 The file type is not supported or otherwise could not be played
		1-03 The TOC or file system could not be read, or focus adjustment was not possible
		1-04 The CD drive hardware is broken
		1-05 The track cannot be accessed

		2-01	The cassette mechanism is broken
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Request/Preset ERROR SENSE [78]